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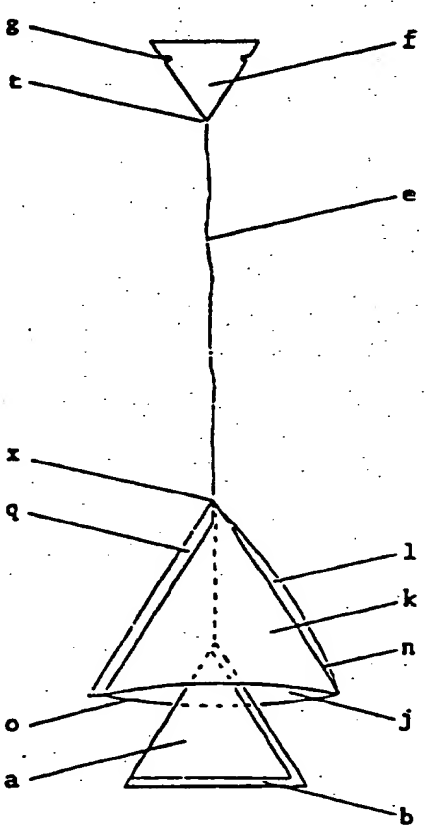
(57) Abstract

Disposable packaging for the production of beverages, especially tea, consisting of a, in its primary form, triangular extractionbag (a) is made of a filtering material with an attached string (e) packed in an also triangular envelope (j and k) made of a flexible, moisture absorbing, but not moisture penetrating material, in such a way that the bag after use can be pulled back into the envelope by means of the string (j, k, and l) and said envelope will thus hide the used bag and absorb the excess liquid so that the packaging can be put aside without dripping, stains or moisture problems. The triangular form, based on the principle of the funnel, ensures that the bag is always placed in the envelope without problems.



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A disposable packaging for the production of beverages especially tea, and a method for production of such packaging

The invention concerns a disposable packaging for production of beverages, especially tea. The disposable packaging is of the kind which consists of a 2-ply filtering material, in particular filtering paper, divided in one or more separate chambers each containing tea or a similar material extractable in fluid, which material in the following is called an extraction bag. To the extraction bag is attached a piece of string which at the opposite end could have a label for pulling out the bag. Extraction bag, string and label are wrapped in a flexible piece of material which is moisture absorbing, but not moisture penetrating, which material in particular can be paper and in the following is called an envelope. The envelope serves the purpose of protecting the extraction bag and its contents.

The known disposable packaging of this kind are usually making use of an extraction bag, with fixed string and label, consisting of separate chambers in a rectangular shape containing extractable material wrapped in an equally rectangular envelope. In this embodiment the envelope only serves the purpose of protecting the contents before use and then it has to be discarded. Subsequently, the practical and aesthetic problem arises as to remove the wet or humid extraction bag which often will be placed into or upon available unsuitable objects as e.g. ash trays, waste paper baskets, plates or the like. In many cases the contents of the wet bag will furthermore leave undesired spots on table surfaces, table cloths etc. from which they can be difficult to remove.

By using the embodiment known from German Patent Application No. DE A1 3826911 the above mentioned discarding problem can, principally, be solved, as said improvement is pressing the moisture out of the bag by using a special twisting device and thereafter is re-using an enclosed envelope or envelope-like

object as in open and closed version, respectively, functions as cover for the used bag

The embodiment is obviously bearing the impress of being an adjusted solution based on the previously mentioned known rectangular extraction bag and is such encumbered with a number of disadvantages in relation to the problem it pretends to solve.

1. The shown and described twisting device in which the string is taken all the way around the extraction bag, fixed in a number of sliding loops or similar, is making the production process difficult, since precisely the attachment of the string to the bag is the critical point in the production of the previously mentioned disposable packaging and consequently an already difficult production process is being complicated.

2. A second disadvantage in relation to the production is the complicated operation to take the string, with or without label through the envelope in the shown and described embodiments.

3. In practical use with the varying qualities of filter material there may be a risk that too hard a pull in the string will cut the bag into pieces and thus empty the used extracted contents in an undesired way, e.g. down into the ready-made beverage.

4. In the shown and described embodiments in which the envelope is open in the sides (fig. 1, 3 and 4) it does not seem immediately logical to place the packaging in such a way that the used bag is of no inconvenience. It can easily be tilted, being open in three out of four sides, and consequently the humid bag will continue to be able to make spots etc. on the undercover. The used bag furthermore still represents a problem of aesthetic matter exactly because it

still is to be seen, the damp has only be reduced to humidity.

5. The lack of geometric harmony between extraction bag and envelope in the closed, tubular embodiment (fig. 2, 7, 8 and 9) gives prohibitive production costs as to waste of paper regarding the envelope and also disadvantageous assembling processes by putting on the "lid" to the tubular embodiment, and also taking the string through this. This principle can also provide consumptuous disadvantages due to the fact that the embodiment not always guarantees that the bag e.g. will not stick to the edge of the opening of the envelope by withdrawal of the bag to this.

Regarding the German Patent Application No. DE A1 3826911 it can altogether be concluded that said problems basically exist because of a lacking co-ordination of the forming of the individual parts of the packaging: bag, string and envelope which probably is due to the fact that the patent application specifically comprises a twisting principle and not a co-ordinated re-using of the envelope in correlation with the bag and the string.

Extraction bags, which after use can be kept in the packaging, are known from US-patents no.: 2308241, 3057729, 3047397, 2800408 and especially no. 2860989. The known extraction bags are, however, all defective in relation to a very decisive point: they all operate with solutions to the storing problem, limited by the prejudice about the rectangular tea bag, instead of analysing the basic problem: that a closed bag containing tea via an attached string taken through the envelope-like object having the opening downwards turning, is to be pulled up into this without the tea bag risks to stick in the sides of the opening of the envelope.

In the common embodiment where the string is attached to the tea bag about its vertical symmetry line, two corners arise which by leading-in into a rectangular envelope precisely will stick in this opening unless the action is performed with, in relation to practical use, an excessive accuracy and concentration. In order to enable the action to be performed without problems the envelope must be broader than the tea bag.

The mentioned US-patents are said to solve this geometric problem in two ways: By the fact that the envelope is open at 3 sides so that a rectangular tea bag never will stick in the opening of the envelope whereby the packaging only, however, solves the problem half as to disposal of the tea bag, since it only is possible to press the water out of the bag. This principle is regarding the US-patents no.: 2308241, 3057229, 2800408 and 3047397.

US-patent no. 2860989 is based on the principle: To draw the used tea bag up into a rectangular envelope being open only at one side: To ensure the lead-in of the tea bag into the envelope it has been provided with a number of slits and foldings, which enable the opening of the envelope to expand and thus a kind of funnel effect is created. The problem to this solution is only that these slits and foldings of the envelope envitable will complicate and raise the production process to an unreasonable extend. It can be objected that the solution could be simplified by making the envelope so much bigger than the tea bag itself, that this latter always will be able to be pulled up into the envelope without sticking into its sides. That "simplification" will, however, imply a completely unreasonable waste of paper together with much too high transportation costs due to the fact that a lot of unnecessary air will be freighted around. Furthermore US-patent No. 2860989 tries to meet said in-leading problem by attaching the string to one of the upper corners of the rectangular tea bag so that it is a "pointed" part of the tea

bag which in the beginning is taken into the opening of the envelope. This solution implies, however, one essential problem: When a rectangular tea bag is lowered into a container with liquid, most often boiling water, it will deposit on the container's horizontal bottom, resting on that edge of the tea bag which turns opposite of the edge to which the string is attached.

When the tea bag, with the string attached at the above named corner, is pulled out of the liquid, the deposit's solid mass will spread asymmetric in relation to the vertical axis which the string now creates. The uneven weight distribution in relation to the vertical axis (the string) implies that the upper point of the tea bag probably can be taken rather safely into the opening of the envelope, but when the lower part of the tea bag containing the solid mass is to be pulled "on board" it will stick to one of the two sides of the opening of the envelope because of the asymmetric weight distribution at the string. Furthermore, the uneven weight distribution will have a tendency to put the tea bag in rotation about its own vertical axis (the string) when the tea bag is pulled up into the envelope, whereby the lead-in into this is made difficult since the tea bag easily can place itself crosswise in the opening of the envelope.

These problems is according to the invention eliminated with a disposable packaging in which an extraction bag consists of one or more separate or connected, in their primary form, triangular chambers of a 2-ply filtering material and the envelope consists of at least 2 overlapping, in their primary form triangular flaps of a flexible, moisture absorbing, but not moisture penetrating material, in particular paper, that the string attached to the extraction bag can be wrapped between the flaps in such a way, that the string attached to the extraction bag is taken through one the corners of the triangle and that the 2 sides of the triangle, on each side of

the corner, lengthways have been assembled in such a way that a triangular envelope thereby is created, which connected to the extraction bag and to the string attached to this latter form a disposable packaging based on the funnel principle, where the triangular extraction bag after use, via withdrawal of the string, thus easily will re-enter the triangular envelope which hereby hides the used bag and then can absorb the extra liquid from the bag without using ingenious and complicated twisting devices or the like. The principle ensures that the string, in the production process, is attached to the envelope without penetrating this. Thereby a much simpler production is ensured than is the case with t known patented principles.

Thus a disposable packaging is obtained which by co-ordination of the forming of the individual packaging parts: Extraction bag, string and envelope obtain an overall solution to the problems mentioned before and thereby ensures a simple, logical and hygienic re-use of the envelope without risking spots etc. and which is based upon an uncomplicated production process with a minimum waste of resources. At the same time the final product is simple to use and can be introduced as a natural development of the known principles.

In an unique embodiment for disposable packaging according the invention there is to the envelope attached a flap as most often is corresponding in size and shape to the envelope, which flap in packing is folded and closed over the opening of the envelope, so that the extraction bag and its contents are hygienic sealed and protected before use. The flap can in use be folded around the envelope and after use re-folded back to the sealing position along a weak adhesive strip or similar so that the used bag in this way is sealed.

In another embodiment for the disposable packaging according to the invention the string is in packing attached to the said

flap which is connected to the envelope along a perforated tearing off line in a form having the advantage that the flap by opening the packaging merely can be torn off from the envelope and then be used as a label. Production-wise this embodiment requires less possible operations and without loss of kindness to the user.

The invention also relates to a method for production of the disposable packaging. Said method is unique in that the extraction bag is being produced by a, in principle, infinite tube of 2-ply filtering material alternately being closed crosswise along lines in slanting angles, measured in relation to the two lengthways sides of the tube by hot welding or similar technique, and each of the extraction bags thus closed is cut off along the crosswise closures, whereafter a piece of string, perhaps with a label, is attached to one of the three corners of the extraction bag by hot welding, gluing or a similar technique, that the envelope is produced by an, in principle, endless length of moisture absorbing, but not moisture penetrating material, is marked crosswise along lines in slanting angles analogous to the ones used in the extraction bag, measured in relation to the two length-going sides of the length, whereafter these are cut off from the length in a number of at least two connected flaps, and then the extraction bag is placed upon one of these two flaps, with the string taken out beyond one of the two corners where the two flaps are connected, then the two flaps are folded over one another along the crosswise line connecting these two flaps, which hereafter are attached to one another along at least one of the two open sides of the envelope by crimping, gluing or a similar technique in such a way that the extraction bag and its string are attached to the envelope.

The principle of cutting out and folding mutually connected equilateral triangles is production-wise optimum because it

requires less possible mechanical operations together with an optimum resource use (minimum of paper waste).

By a particular embodiment in production of disposable packaging according to the invention, the extraction bag is cut out in a number of at least two connected extraction bags, which are folded over one another along the crosswise closure. The two opposite pointed corners of the two extraction bags are then attached to one another by hot welding, gluing or a similar technique.

The invention is explained in the following referring to the drawings where:

Fig. 1 shows cutting out and folding of an embodiment of an extraction bag according to the invention, consisting of two chambers, from a section of an, in principle, endless tube of mutual laterally reversed, triangular extraction bags, consisting of 2-ply filtering material,

Fig. 2 shows the extraction shown in fig. 1 with attached string and label,

Fig. 3, 4 and 5 show stages of the packing of the extraction bag shown in fig. 2 in a folded envelope according to t invention, cut out from a section of an, in principle, endless row of mutual laterally reversed, triangular flaps, consisting of a flexible moisture absorbing, but not moisture penetrating material. As a matter of illustration the use of both 2 flaps and 3 is shown, according to the paragraph of the description of the envelope.

Fig 6 shows a typical embodiment of a disposable packaging according to the invention, in sealed, but ready to use version. The use of a possible third flap according to the description of the envelope is also shown in this figure.

Fig. 7 shows the same, but now in open condition.

Fig. 8 shows the withdrawal principle of a used extraction bag to the envelope.

Fig. 9, 10 and 11 show the same as fig. 6, 7 and 8, but in an version where the flap connected to the envelope is torn off and used as label.

Fig. 1 shows a section of an, in principle, endless tube of 2-ply filtering material (i) which through hot welding or similar technique continues to be divided into a number of connected, mutually separated extraction bags (a) shaped as triangular chambers, each containing divided portions of a material extractable in a fluid. The drawing shown illustrates the most prevailing double chamber bag consisting of two connected chambers, cut off along the centre line (h) by the crosswise closures (b) and folded over the centre line (c) in the crosswise closure between the two connected chambers.

Fig. 2 shows a complete extraction bag (a), in principle consisting of one or more separate or connected chambers as shown in fig. 1 with a piece of string attached to one of the 3 corners of the extraction bag. At the opposite free end (t) of the string (e) a label (f) is fixed possibly provided with a couple of slits (g) for rolling up the string.

Fig. 3 shows a section of an, in principle, endless length of a flexible moisture absorbing, but not moisture penetrating material, especially paper, which continuously along crosswise lines (u) are marked as a row of triangular flaps. The drawing shows the first stage of the packing process of the shown extraction bag in an envelope as shown in fig. 2, where the extraction bag (a) is placed upon a flap (j) and then its opposite connected flap (k) is cut off along the line (m) and

folded in over the extraction bag placed on the first flap (j) and the attached string (e) on this latter, which string has been taken through the corner (x) by folding over the line (n). The two flaps (j and k) are assembled to one another along the side (p) of the triangle by crimping, gluing or a similar technique and thereby forming an envelope which is connected to the extraction bag and its string. A possible third flap (l) which is connected to the envelope, is cut out and is started to be folded along the side (o) of the triangle over the envelope.

Fig. 4 shows next stadium of the packing process shown in f . 3, where the string (e) is rolled up around the label's (f) two slits (g) (rolling up of the string can take place in other ways than the one shown here) and placed on one of the flaps (k) of the envelope, and then the possible third flap (l) is folded over the envelope's opening on the said flap (k) and the string rolled up around the label.

Fig. 5 shows the last stadium of the packing process shown in fig. 3 and 4 where the possible third flap (l) is folded completely over the flap (k) of the envelope and assembled with a fastening line (q) to one of the closed sides of the envelope perhaps by crimping or similar technique. The drawing thus shows, according to the invention, a complete disposa. e packaging ready to use, but before use with an extraction bag sealed in an envelope and with the string (e) rolled up around the label practically placed and fixed between the possible third flap (l) and the envelope.

Fig. 6 shows the same as fig. 5 with the contents of the envelope: bag, string and label, indicated by the dot-and-dash line.

Fig. 7 shows the packaging of fig. 6 with the possible third flap (l) opened along the fastening line (q) and unfolded

along the side (o) of the triangle while the string (e) is untwisted from the label (f). The extraction bag (a) is torn partly out of the envelope, ready for use.

Fig. 8 shows the invention in practical use, where the possible third flap (l) is folded along the side (o) of the triangle to the second flap (j) of the envelope so that the triangular envelope now forms a funnel into which the used extraction bag (a) by a vertical pull in the label (f) and string (e) is caught up naturally. The embodiment makes it possible to seal completely the used extraction bag by repeating the movements of the third flap (l) as shown in fig. 6 and 7, only in reverse order. For this purpose the fastening line (q) of the envelope can possibly be provided with a light gluing or similar so that the flap (l) can be re-fastened and kept to the envelope.

Fig. 9 shows the same as fig. 5 with the contents of the envelope: bag and string, indicated by the dot-and-dash line. The folding line (o) shown in fig. 6 has in this version been replaced by a perforated tearing off line (r).

Fig. 10 shows the packaging of fig. 9 with the possible third flap (l) opened from the envelope (j and k) and unfolded along the perforated line (r) with the string (e) visible, fixed (s) to the inner side of the third flap (l). The extraction bag (a) is torn partly out of the envelope, ready for use.

Fig. 11 shows the invention in practical use where the possible third flap (l) with the attached string (e) is torn off the flaps (j and k) of the envelope along the perforated line (r) in such a way that the triangular envelope now forms a funnel into which the used extraction bag (a) by a vertical pull in the torn off flap (f) of the envelope and string (e) can be caught up in a natural way.

C l a i m s

1. A disposable packaging for the production of beverages, especially tea and of the type consisting of a 2-ply filtering material (i) in particular of filtering paper, divided into one or more separate extraction bags (a) each containing tea or a similar material extractable in a fluid, to which a piece of string (e) is attached, and where extraction bag and string are wrapped in an envelope where the string attached to the bag with a label (f) has been taken through the envelope in such a way that the withdrawal of the used bag into the envelope is made possible by pulling the string, c h a r a c e r i z e d by the fact that the extraction bag consists of one or more separated or connected, in their primary form, triangular chambers of 2-ply filtering material, that the envelope consists of at least two overlapping, in their primary form, triangular flaps (j and k) of a flexible, moisture absorbing, but not moisture penetrating material, in particular paper, that the string attached to the extraction bag has been taken through one of the corners of the triangle (x) and that the two sides of this triangle, on each side of the corner, lengthways have been assembled as a triangular envelope which is connected to the extraction bag and the thereto attached string.

2. A disposable packaging according to claim 1, c h a r a c t e r i z e d by the fact that a, in size and embodiment usually corresponding flap (l) is attached and connected to the envelope, and that said flap by packing has been folded along a line (o) and closed over the opening of the envelope.

3. A disposable packaging according to claim 1 and 2, c h a r a c t e r i z e d by the fact that the string (e) by packing has been attached to the above mentioned flap (l) which is connected to the envelope (j and k) along a perforated tear-off line or the like (r).

4. A method for the production of a disposable packaging for the production of beverages, especially tea and of the type, consisting of a 2-ply filtering material (o) in particular filtering paper, divided into one or more separate extraction bags (a) each containing tea or a similar material extractable in fluid, to which a piece of string (e) is attached and where the extraction bag and string are packed in an envelope through which the string attached to the bag with a label (f) has been taken through in such a way that the withdrawal of the used bag to the envelope is made possible by pulling the string, c h a r a c t e r i z e d by the fact that the extraction bag is made of a, in principle, endless tube of a 2-ply filtering material alternately closed crosswise along lines in slanting angles (b) measured in relation to the two lengthways sides of the tube, by means of hot welding or a similar technique, and each of the extraction bags thus closed are cut off along the crosswise sealing (h) whereafter a piece of string is attached e.g. with a label to one of the three corners of the extraction bag by means of hot welding, gluing, or a similar technique (d), that the envelope is made of an in principle endless sheet of moisture absorbing, but not moisture penetrating material, marked lengthways along lines in slanting angles analogous with those used in the extraction bag (u) measured in relation to the two lengthways sides of the sheet, whereafter these are cut off from the sheet (m) in a number of at least two connecting flaps (j and k) and the extraction bag is hereafter placed on one of these two flaps with the string placed over one of the two corners (x) where the two flaps are connected, whereafter the two flaps are folded over one another along the crosswise line (n) which together these two, which hereafter are attached to one another along at least one of the two open sides of the envelope (p) with crimping, gluing or a similar technique so that the extraction bag and its string are connected with the envelope.

5. A method according to claim 4, c h a r a c t e r i z e d by the fact that the extraction bag is cut out in a number of at least two connecting extraction bags which are folded over one another along the crosswise sealing (c) whereafter the opposite pointed corners of the two extraction bags are attached to one another (d) by means of hot welding, gluing or a similar technique.

AMENDED CLAIMS

[received by the International Bureau on 24 June 1996 (24.06.96); original claims 1-5 replaced by amended claims 1-7 (3 pages)]

1. A disposable packaging for by infusion to brew a beverages of an extractable material, especially tea, comprising a filter bag for containing the extractable material, a mainly triangular envelope which serves to house the bag and has opening means for opening the envelope along one side of the triangle, and a pull string attached to the bag for pulling the bag into the envelope after infusion, c h a r a c t e r i z e d in that the bag has a triangular form, that the string is attached to one of the corners of the triangular bag and is movable extending through a hole in one of the corners of the triangular envelope opposite the opening side of this, and that the envelope is made of a flexible, moisture absorbing but not moister penetrating material.

2. A disposable packaging according to claim 1, c h a r a c t e r i z e d in that the triangular bag and the triangular envelope are congruent.

3. A disposable packaging according to claim 1 or 2, c h a r a c t e r i z e d in that the means for opening the envelope along one side of the triangle consist of a flap which is attached to the envelope along one edge of said opening and is folded over the other edge in closed condition.

4. A disposable packaging according to claim 1, 2 or 3, c h a r a c t e r i z e d in that a label is fixed to the free end of the string.

5. A disposable packaging according to claim 3 and 4, c h a r a c t e r i z e d in that the label is formed as part of the flap and is adapted to be teared off this along a perforated tear-off line or the like.

6. A method for the production of a disposable packaging for the production of beverages, especially tea and of the type, consisting of a 2-ply filtering material (o), in particular filtering paper, divided into one or more separate extraction bags (a) each containing tea or a similar material extractable in fluid, to which a piece of string (e) is attached and where the extraction bag and string are packed in an envelope through which the string attached to the bag with a label (f) has been taken through in such a way that the withdrawal of the used bag to the envelope is made possible by pulling the string, c h a r a c t e r i z e d by the fact that the extraction bag is made of a, in principle, endless tube of a 2-ply filtering material alternately closed crosswise along lines in slanting angles (b) measured in relation to the two lengthways sides of the tube, by means of hot welding or a similar technique, and each of the extraction bags thus closed are cut off along the crosswise sealing (h) whereafter a piece of string is attached e.g. with a label to one of the three corners of the extraction bag by means of hot welding, gluing, or a similar technique (d), that the envelope is made of an in principle endless sheet of moisture absorbing, but not moisture penetrating material, marked lengthways along lines in slanting angles analogous with those used in the extraction bag (u) measured in relation to the two lengthways sides of the sheet, whereafter these are cut off from the sheet (m) in a number of at least two connecting flaps (j and k) and the extraction bag is hereafter placed on one of these two flaps with the string placed over one of the two corners (x) where the two flaps are connected, whereafter the two flaps are folded over one another along the crosswise line (n) which together these two, which hereafter are attached to one another along at least one of the two open sides of the envelope (p) with crimping, gluing or a similar technique so that the extraction bag and its string are connected with the envelope.

7. A method according to claim 6, c h a r a c t e r i z e d in that the extraction bag is cut out in a number of at least two connecting extraction bags which are folded over one another along the crosswise sealing (c) whereafter the opposite pointed corners of the two extraction bags are attached to one another (d) by means of hot welding, gluing or a similar technique.

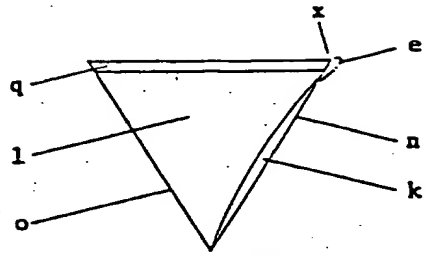

FIG. 5

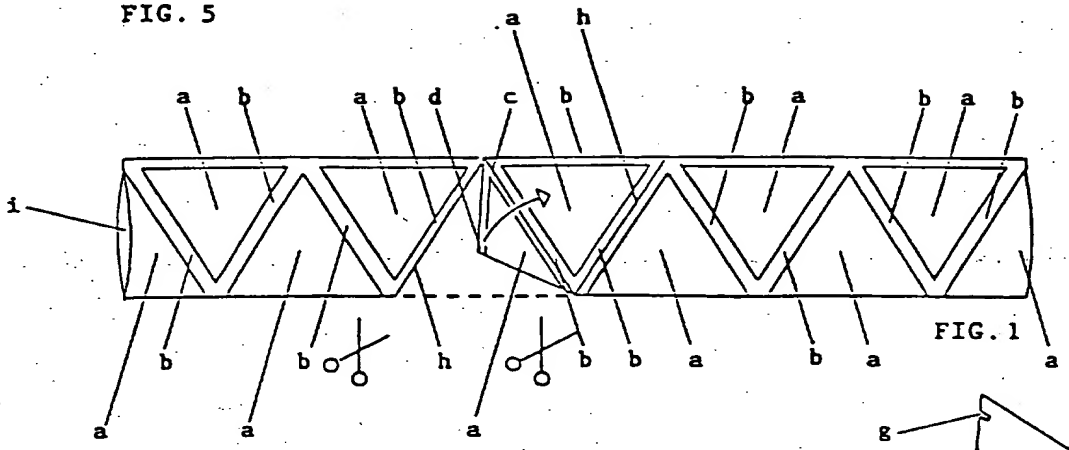

FIG. 1

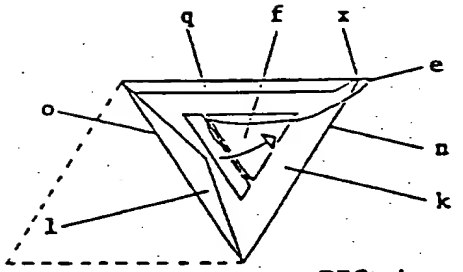

FIG. 4

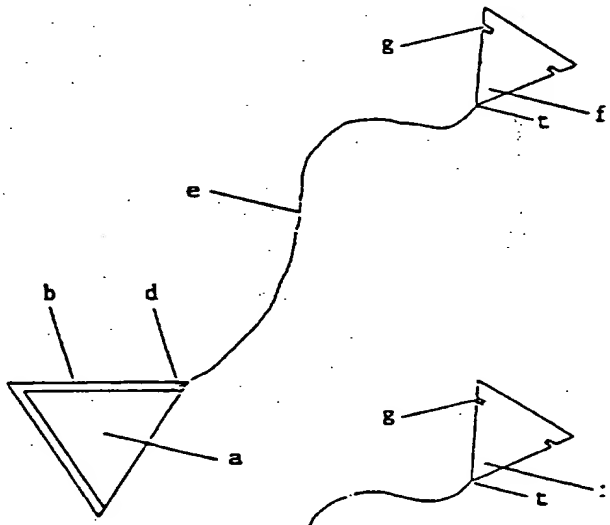

FIG. 2

FIG. 3

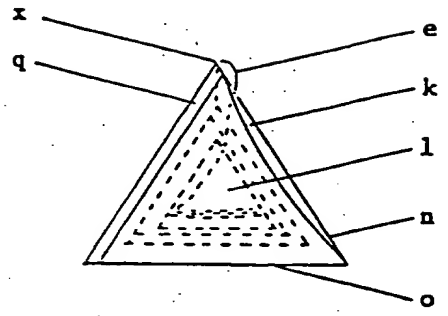

FIG. 6

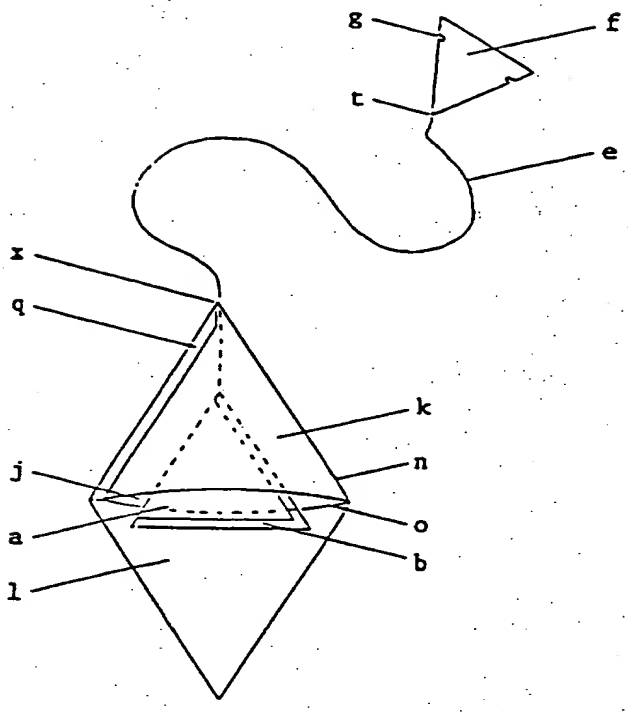

FIG. 7

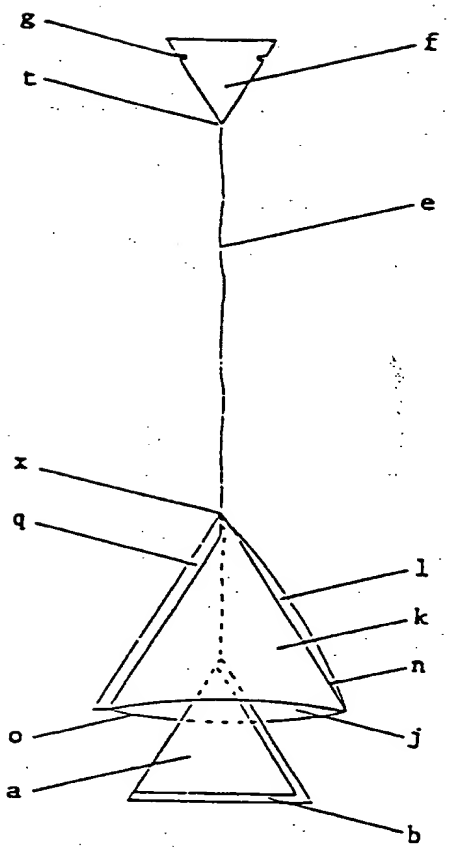

FIG. 8

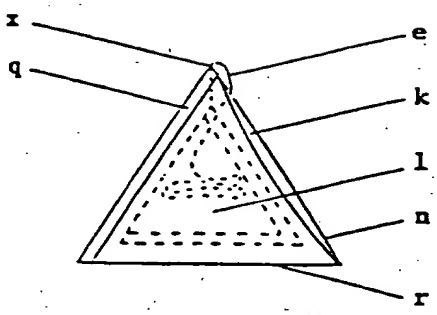

FIG. 9

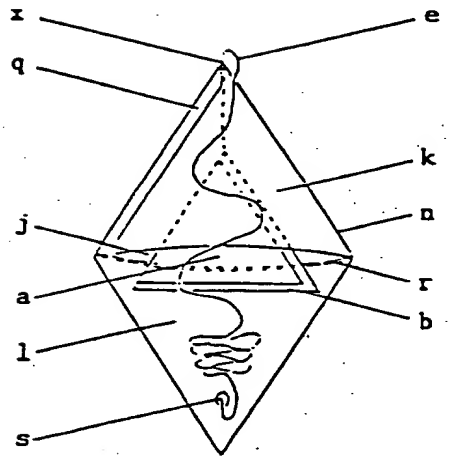

FIG. 10

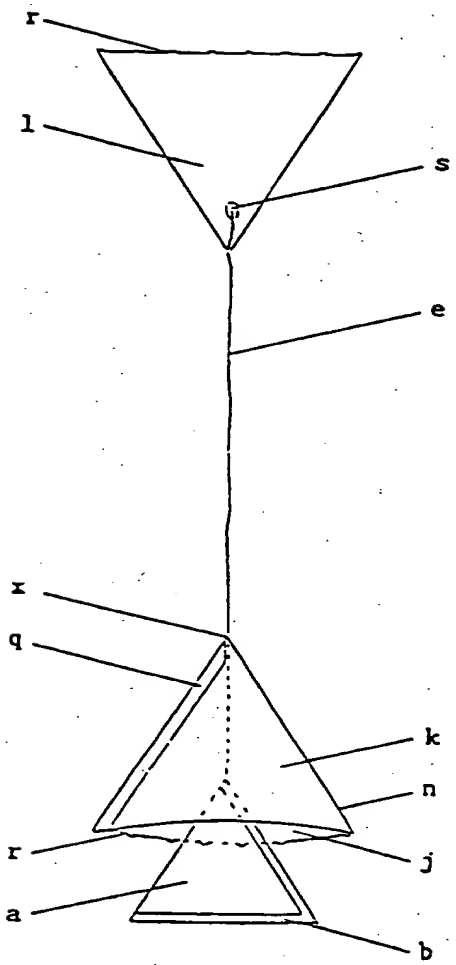

FIG. 11

INTERNATIONAL SEARCH REPORT

International application No.
PCT/DK 96/00053

A. CLASSIFICATION OF SUBJECT MATTER

IPC6: B65D 81/34, A47G 19/16
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC6: B65D, A47G, B65B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

QUESTEL, DTALOH

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 3057729 A (W. H. GRANT), 9 October 1962 (09.10.62), column 1 - column 2, figure 1 --	1-3
Y	US 1581578 A (O. L. KIESELBACH), 20 April 1926 (20.04.26), page 1, line 54 - page 2, line 18 --	1-3
Y,P	WO 9510461 A1 (UNILEVER PLC), 20 April 1995 (20.04.95), page 3, line 3 - line 17, figure 1 --	1-3
Y	US 4290521 A (MITCHELL), 22 Sept 1981 (22.09.81), column 4, line 10 - column 5, line 2, figure 4 --	4,5

[X] Further documents are listed in the continuation of Box C. [X] See patent family annex.

* Special categories of cited documents:
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"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
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"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
15 June 1996	17 -06- 1996
Name and mailing address of the ISA/ Swedish Patent Office Box 5055, S-102 42 STOCKHOLM Facsimile No. +46 8 666 02 86	Authorized officer Kerstin Brinkman Telephone No. +46 8 782 25 00

INTERNATIONAL SEARCH REPORT

Information on patent family members

01/04/96

International application No.
PCT/DK 96/00053

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US-A- 3057729	09/10/62	NONE	
US-A- 1581578	20/04/26	NONE	
WO-A1- 9510461	20/04/95	NONE	
US-A- 4290521	22/09/81	US-A- 4417433	29/11/83
WO-A1- 9215500	17/09/92	AU-B- 651443 NZ-A- 241772 US-A- 5478581	21/07/94 26/05/95 26/12/95
US-A- 4551336	05/11/85	NONE	